Diagnostic Images

? Pulmonary oedema

Presented by L. Kreel and M.A. Al-Kutoubi

Department of Diagnostic Radiology and Organ Imaging, Chinese University of Hong Kong, Prince of Wales Hospital, Shatin, N.T., Hong Kong and Radiology Department, St Mary's Hospital, Praed Street, Paddington, London W1, UK.

The patient

A 24 year old male presented with marked shortness of breath and weight loss.

Investigations

Chest radiographs. Bronchoscopy.

Figure 1 Chest radiography showing ground glass shadowing more marked on the left and at the bases, blurring of the margins of the pulmonary arteries and cardiac contours together with peribronchial cuffing (arrows). The heart is normal in size and shape, there is no pleural effusion or upper lobe blood diversion.

Figure 2 A radiograph taken 1 week later shows clearing at the right lower and midzones but extension at the right upper lobe and marked ground glass shadowing throughout the left lung with an 'air-bronchogram' (arrows).

Comment

Pulmonary oedema produces ground glass hazy shadowing usually most marked at the hilar regions, blurring the margins of the pulmonary arteries and later the cardiac border as well as causing bronchial wall cuffing. In heart failure there is usually cardiac enlargement with interstitial oedema lines especially Kerley 'B' lines, i.e. short horizontal peripheral lines at the base as well as a pleural effusion often lamellar.

Upper lobe blood diversion indicating raised pulmonary venous pressure may also be noted and the pulmonary oedema usually clears rapidly on treatment. However, pulmonary oedema can also be due to fluid overload, renal failure, high altitude disease, hypersensitivity, head injury, toxic fumes and associated with shock lung especially with Mendelson's syndrome. Pneumonitis, particularly viral and protozoal, produce an inflammatory pulmonary oedema progressing to frank consolidation, as occurs with *Pneumocystis carinii* and cytomegalic viral pneumonia, AIDs being a potent contributory factor, as in this case, but can also occur in malignant disease, treatment with cytotoxics, steroids and radiation.

Pneumocystis carinii pneumonia was diagnosed following bronchoscopy.

Figure 3 Further deterioration has occurred with more shadowing on the left, air-bronchogram still present and there is a return of the shadowing on the right. Monitoring leads and oxygen delivery visible.

Acknowledgements

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Reference

- Vanley, G.T. Huberman, R. & Lufkin, R.B. Atypical *Pneumocystis carinii* pneumonia in homosexual men with unusual immunodeficiency. *Am J Roentgenol* 1982, **138**: 1037–1041.